REMARKS

Initially, the Office is requested to clarify for the record which claims are being examined and which claim has been withdrawn. Page 1 of the Action identifies claim 22 as having been withdrawn from consideration and claims 1-21 and 23-26 as being rejected. In the paragraph bridging pages 3 and 4 of the Action, claim 21 is identified as being withdrawn from further consideration. However, in the lack of unity of invention holding on page 4 of the Action, claim 22 is identified as being obvious or anticipated over Bates and restriction is required between (I) claims 1-20 and 22-26, and (II) claims 45-49.

Applicant cannot properly elect a single invention until the restriction requirement is properly explained. Applicant intends to rely, however, on its previous election.

Claim 1 has been amended to remove the 35 U.S.C. § 112, second paragraph, ground of rejection by clarifying, as proposed in the Action, that "drying" as used in claim 1 means web forming. Specifically, in claim 1 the third step of the method, which previously recited: "the fiber material is dried", has been amended

to read: --the fiber material is introduced to a paper machine and formed into a web--.

Removal of the 35 U.S.C. § 112 rejection is respectfully requested.

Claims 1-14, 18-20 and 22-26 stand rejected in the Action under 35 U.S.C. §103(a) as being unpatentable over Bates in view of Rha or the admitted prior art with or without Hassi. Claims 15-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bates in view of Rha or the admitted prior art as applied above and further in view of Hassi. Claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Bates with or without Hassi as applied above and further in view of Rha.

Reconsideration of these rejections is respectfully requested. The proposed modification of Bates will not result in the method recited in the rejected claims.

The Bates reference teaches a surface sizing composition, which comprises at least one thermoplastic resin, starch and surfactant. In addition to starch, Bates discloses that CMC and other cellulose derivatives can be used (see Col. 8, lines 62-65).

Bates discloses that the composition can be used at a pH of 5.6 to 9, preferably in the range of 7 to 9.

The composition of Bates always comprises a hydrophobic component (i.e., the thermoplastic resin). It is combined with a hydrophilic component, such as starch or alternatively a polysaccharide colloid, such as an alkyl derivative of cellulose.

According to the Action, Bates teaches "forming a fiber suspension, adding components modifying the properties of the fibers and drying the fiber material." This order of steps is not correct. Bates is directed to surface sizing of paper. This conclusion is supported by the description in Col. 3, lines 39 to 41, and Col. 10, lines 11 and 20 and 21. The concept of surface sizing is explained in more detail in Col. 3, lines 25 to 30. The surface sizing corresponds to the post-treatment step (4) referred to in column 1, lines 22 to 24. The correct order of steps according to Bates is: forming a fiber suspension, sheeting and drying the fiber material, and post-treating the web by surface application of sizing material.

The surface sizing is different from the pulp sizing step (2) in column 1. There is a difference between sizing of a paper and

sizing of cellulose/lignocellulose fibers. As mentioned above, Bates proposes to use a composition containing a hydrophobic component, the thermoplastic resin. This component will improve the water resistance of the surface. In addition it will "size" the surface against other liquids that will contact it during ink jet printing (cf. column 11, lines 22 to 26). The surface size will be spread over the surface of the paper web, but it will not significantly penetrate into the paper matrix. By contrast, during wet-end sizing, the sizing component is attached to the fibers.

The purpose of the cellulose derivative used in the present invention is to improve strength properties without impairing scattering (cf. page 3, penultimate paragraph). To achieve this goal, the alkyl derivative is bonded to the fibers so that it cannot be washed off with water. This aim cannot be achieved by the Bates composition if it is mixed with the fiber furnish. If the Bates composition were added to the fibers before the paper machine, the hydrophobic part, making up the absolute majority of the composition, would attach to the fibers and prevent the hydrophilic starch or as the case may be the alkyl cellulose derivative from bonding to the fibers.

To illustrate this point, reference is made to a person who is gluing together two objects, say two pieces of wood. He applies the glue directly on the surfaces of the wood pieces and presses them together. (This situation is analogous to the one according to the present invention, wherein the alkyl derivative of cellulose is mixed with fibers and allowed to adsorb and bond to the fibers; the cellulose derivative will attach the fibers together and increase the strength of the paper web formed from the fiber suspension). He would, however, not apply a hydrophobic component, such as wax or grease or a resin, on the surfaces, which should be glued together, (the "Bates approach" proposed in the Office Action), because he knows that is the best way of preventing good attachment.

Therefore, a person skilled in the art knowing the composition of the Bates production, in particular knowing that it contains 70% or more of a hydrophobic resin, would not have attempted to mix it with a stock furnish and even if he did try, he would have found that the alkyl derivative did not improve fiber-to-fiber bonding because the resin or wax made the fiber surfaces hydrophobic and prevented adsorption of CMC.

In other words: the surface size of Bates used at the dry end of a paper machine cannot properly be used for sizing of fibers at the wet end and, even if were, would not result in bonding of the cellulose derivative to the fibrous raw material as required in the present claims. It does not matter that Bates suggests an alkaline pH range. That pH is suggested only for surface sizing, and even if the same pH were used at the wet end, the above reasoning still holds true. Additionally, there is nothing in Bates to suggest that contacting between the size and the fibers should be carried out for a sufficient period of time to allow for bonding of CMC to the fibers so that it cannot be washed off.

Adding CMC to a pulp suspension is known in the art. Rha et al. teaches the addition of sizing agents. The differences between the present invention and the Rha references were already previously explained. Importantly, Rha does not use a CMC which is water-soluble in mainly alkaline conditions and which will bond to the fibers at alkaline conditions so that the CMC (or other alkyl derivative) is bonded to the fibers so that it cannot be washed off.

Neither Rha nor Bates suggests the use of an alkyl derivative of cellulose which is water soluble at mainly alkaline conditions.

Hassi teaches a whitening composition, which can be applied to the surface of a paper. Once again, the composition is not mixed with fibers and the conditions are not such that the CMC from the composition would bond to the fibers so that it cannot be washed off.

It is also known in the art that CMC has can act as a bonding agent, as suggested in the Office Action. However, it is not known in the art how CMC and other alkyl derivatives can be bonded to the fibers so that it cannot be washed off.

For the foregoing reasons, the prior art and, particularly, the references cited in the outstanding Action do not support a case of prima facie obviousness of the method of the present invention and removal of the 35 U.S.C. § 103(a) rejections is in order.

The foregoing is believed to be a complete and proper response to the Office Action dated October 21, 2002, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone

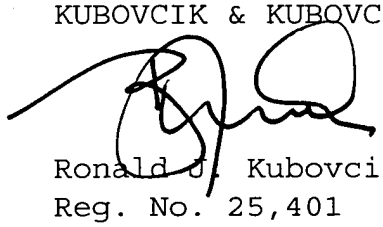
interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**."

In the event that this paper is not considered to be timely filed, applicant hereby petitions for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,
KUBOVCIK & KUBOVCIK



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 1 has been amended as follows:

1. **(Twice Amended)** A method of producing a modified fiber product, according to which method

- cellulosic raw material is formed into a fiber suspension,
- components modifying the properties of fibers are added to the fiber suspension and
- the fiber material is [~~dried~~] **introduced to a paper machine and formed into a web**,

characterized in that

- an alkyl derivative of cellulose, which is water-soluble in mainly alkaline conditions, is mixed into the fiber suspension in alkaline conditions before introducing the fiber suspension to the paper machine, the derivative being at least partly dissolved in water, and

- the derivative is allowed to be bonded to the fibrous raw material prior to drying the fibrous material so that the bonded cellulose derivative can not be washed off with water.